THAT CLAIMED IS:

1. A user-actuated ignition and powering system for starting and sustaining the operative functioning of an internal combustion engine in a vehicle and powering at least one electronic control unit positioned to control a predetermined function associated with the operation or use of the vehicle, the user-actuated ignition and powering system comprising:

a starter responsive to the user and having an electrically driven motor to crank the engine;

a capacitor electrically connected to the starter to provide power to drive the motor of the starter and thereby enable the starter to crank the engine;

an alternator mechanically connected to the engine and electrically connected to the capacitor to convert mechanical energy generated by the engine when the engine is operatively functioning into electrical energy to provide power to the capacitor for maintaining the stored energy of the capacitor substantially at or above a first predetermined level;

power delivery controller connected to the capacitor and responsive to the alternator for controlling power delivery to and from the capacitor by permitting power to be delivered from the capacitor to the starter when the starter is engaged to crank the engine, permitting power to be delivered to the capacitor from the alternator when the alternator is operatively generating electrical current such that the stored energy of the capacitor is maintained at or above the predetermined level, and electrically isolating the capacitor from the at least one electronic control unit

to thereby prevent discharge of power from the capacitor to the electrical system of the vehicle;

a voltage enhancer electrically connected to the capacitor and responsive to the power delivery controller to enhance voltage between the capacitor and the alternator when the alternator is operatively generating electrical current to thereby increase the power delivered from the alternator to the capacitor;

at least one battery electrically connected to the at least one electronic control unit of the vehicle to provide power to the electronic control unit and electrically connected to the alternator to receive power from the alternator to thereby maintain the energy of the battery substantially at or above a second predetermined level; and

a power delivery control override responsive to a user and electrically connected to each of the power delivery controller and the capacitor to override the power delivery controller and provide power to the electronic control unit from the capacitor.

2. A system as defined in Claim 1, wherein capacitor has at least eleven cells to readily provide a voltage greater than about fourteen and six-tenths volts (14.6 V).

3. A system as defined in Claim 2, wherein the capacitor provides at least fifteen volts (15.0 V) during normal operating conditions to thereby generate more than six kilowatts (6 kW) of power to the starter.

4. A system as defined in Claim 3, wherein the power delivery controller comprises a switch responsive to an electrical signal supplied by the alternator when

the alternator is generating electrical current, the switch being operatively responsive to the electrical signal by closing an open connection along a current path between the alternator and the capacitor to thereby permit power to be delivered to the capacitor from the alternator when the alternator is generating electrical current such that the stored energy of the capacitor is maintained substantially at or above the predetermined level.

5. A system as defined in Claim 4, wherein the switch comprises at least one of a transistor or a magnetic switch.

6. A system as defined in Claim 5, wherein the voltage enhancer comprises a step-up converter electrically connected to the capacitor and the power delivery controller to step-up the voltage between the capacitor and the alternator to thereby ensure that the voltage is at least about fifteen volts (15.0 V) and less than about seventeen and eight-tenths volts (17.8 V) during normal operating conditions as power is delivered to the capacitor when the starter is disengaged and the alternator is operatively generating electrical current.

7. A user-actuated ignition system for starting an internal combustion engine in a vehicle, the system comprising:

a starter responsive to the user and having an electrically driven motor to crank the engine;

a capacitor electrically connected to the starter to provide electric power for driving the motor of the starter and thereby enabling the starter to crank the engine;

an alternator mechanically connected to the engine and electrically connected to the capacitor to convert mechanical energy generated by the engine when the engine is operatively functioning into electrical energy to provide power to the capacitor for maintaining the stored energy of the capacitor substantially at or above a predetermined level; and

a power delivery controller connected to the capacitor and responsive to the alternator for controlling power delivery to and from the capacitor by permitting power to be delivered from the capacitor to the starter when the starter is engaged to crank the engine and permitting power to be delivered to the capacitor from the alternator when the alternator is operatively generating electrical current such that the stored energy of the capacitor is maintained at or above the predetermined level.

8. A system as defined in Claim 7, wherein the capacitor provides at least about fifteen volts (15.0 V) during normal operating conditions to thereby generate more than about six kilowatts of power (6 kW) to the starter.

9. A system as defined in Claim 8, wherein the capacitor has at least eleven cells to thereby readily provide a voltage greater than 14.6 volts during normal operating conditions

10. A system as defined in Claim 9, further comprising a voltage enhancer electrically connected to the capacitor and to the alternator to enhance the voltage between the capacitor and the alternator to thereby increase the power delivered from the alternator

to the capacitor when the alternator is operatively generating electrical current.

11. A system as defined in Claim 10, wherein the voltage enhancer comprises a step-up converter electrically connected to the capacitor to step-up the voltage between the capacitor and alternator to thereby ensure that the voltage is at least about fifteen volts (15.0 V) and less than about seventeen and eight-tenths volts (17.8 V) during normal operating conditions as power is delivered to the capacitor when the starter is disengaged and the alternator is operatively generating electrical current.

12. A system as defined in Claim 7, wherein the power delivery controller comprises a switch responsive to an electrical signal supplied by the alternator when the alternator is generating electrical current, the switch being operatively responsive to the electrical signal by closing an open connection along a current path between the alternator and the capacitor to thereby permit power to be delivered to the capacitor from the alternator when the alternator is generating electrical current such that the stored energy of the capacitor is maintained substantially at or above the predetermined level.

13. A system as defined in Claim 12, wherein the switch comprises at least one of a transistor or a magnetic switch.

14. A user-actuated ignition system for starting an internal combustion engine in a vehicle, the system comprising:

a starter responsive to the user and having an electrically driven motor to crank the engine;

an alternator; and

an n-celled capacitor electrically connected to the starter to provide power for driving the motor of the starter and thereby enabling the starter to crank the engine and to the alternator for receiving power from the alternator when the alternator is generating electrical current, the number of cells, n, corresponding to the amount of power delivered to the starter by the capacitor and the amount of power delivered from the alternator to the capacitor.

15. A system as defined in Claim 14, wherein the (10 + i)th cell, $i \geq 1$, provides an incremental power increase of greater than about one and ninety six hundredths (1.96) times the product of the capacitance, C, of the capacitor and the total number of cells, n.

16. A system as defined in Claim 15, wherein power, p, is determined by the product 0.98 times the capacitance of the capacitor times the square of the number of cells employed in the system, according to the formula $p = 0.98(C)(n^2)$ watts, where C is the capacitance of the capacitor and n is the number of cells.

17. An internal combustion engine starting system comprising:

a starter to crank the engine when engaged;

an alternator mechanically connected to the engine to convert mechanical energy generated by the engine when the engine is operatively functioning into electrical energy;

a capacitor electrically connected to each of the starter and the alternator to provide power to the starter and receive power from the alternator, the capacitor having at least eleven cells which readily provides a voltage greater than 14.6 volts during normal operating conditions; and

a power delivery controller electrically connected to the capacitor and responsive the starter to prevent power from being delivered by the capacitor to the starter and permit power to be delivered to the capacitor from the alternator when the starter is disengaged and the alternator is operatively generating electrical current such that the energy level of the capacitor is maintained within a predetermined range while permitting power to be delivered to the starter when the starter is engaged.

18. A system as defined in Claim 17, wherein the capacitor provides at least fifteen volts (15.0 V) under normal operating conditions to thereby generate more than six kilowatts of power (6 kW) to the starter.

19. A system as defined in Claim 17, wherein the power deliver controller comprises a transistor responsive to an electrical signal supplied by the alternator when the alternator is generating electrical current, the transistor closing in response to the electrical system to permit power to be delivered to the capacitor from the alternator when the starter is disengaged and the alternator is operatively generating electrical current such that the energy level of the capacitor is maintained within a predetermined range.

20. A system as defined in Claim 19, wherein the power delivery controller comprises a magnetic switch responsive to an electrical signal supplied by the alternator when the alternator is generating electrical current, the magnetic switch closing in response to the electrical system to permit power to be delivered to the capacitor from the alternator when the starter is disengaged and the alternator is operatively generating electrical current such that the energy level of the capacitor is maintained within a predetermined range.

A2

21. A method for selectively providing power to an electrical system associated with an internal combustion engine connected to a starter, an alternator, and a battery, the method comprising:

supplying power from a capacitor to the starter when the engine is being started, the capacitor having at least eleven cells to thereby readily provide a voltage greater than 14.6 volts during normal operating conditions;

preventing delivery of power from the capacitor to the electrical system when the engine is not being started; and

providing power from the alternator to the enhanced-power capacitor when the engine is running.

22. A method as defined in Claim 21, wherein the step of supplying power to the starter comprises generating more than six kilowatts of power (6 kW) to the starter by providing a voltage with the enhanced-power capacitor of at least fifteen volts (15.0 V) under normal operating conditions.

23. A method as defined in Claim 21, wherein the step of providing power from the alternator to the capacitor when the engine is running comprises providing a closed conductive path between the alternator and the capacitor, the path being established in response to a current generated by the alternator.

24. A method as defined in Claim 23, wherein the step of providing power from the alternator to the capacitor comprises providing a capacitor having a voltage level sufficient to deliver enough power to the starter to crank the engine and be recharged directly by the alternator.

25. A method as defined in Claim 24, wherein the step of providing power from the alternator to the capacitor comprises providing a capacitor having n cells wherein each cell provides an incremental increase in power of the product one and ninety six hundredths times the capacitance of the capacitor, C, and the number of cells, n, as represented by the expression 1.96(C)(n).

26. A method as defined in Claim 23, wherein the step of providing power from the alternator to the capacitor further comprises stepping-up the voltage between the capacitor and the alternator such that the voltage is at least about fifteen volts (15 V) and less than about 17.8 volts (17.8 V).

27. A method as defined in Claim 23, wherein the step of preventing delivery of power from the capacitor to the electrical system comprises electrically isolating the capacitor from the electrical system.

28. A method as defined in Claim 27, wherein the step of preventing delivery of power by isolating the enhanced-power capacitor comprises providing a transistor that is connected to the enhanced-power capacitor and that provides an open electrical connection when the engine is not running.

A2

29. A method as defined in Claim 27, wherein the step of preventing delivery of power by isolating the enhanced-power capacitor comprises providing a magnetic switch that is connected to the enhanced-power capacitor and that provides an open electrical connection when the engine is not running.

30. A method as defined in Claim 21, further comprising selectively supplying power from the capacitor to the electrical system.

31. A method as defined in Claim 30, wherein the step of selectively supplying power from the capacitor to the electrical system is performed when the power available to the electrical system from the battery is insufficient to perform a function otherwise powered by the electrical system.